

**Notice of Allowability**

Application No.

09/964,677

Examiner

Matthew J. Sked

Applicant(s)

YAJIMA ET AL.

Art Unit

2655

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/21/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, filed 11/21/05, with respect to claim 1 have been fully considered and are persuasive. The rejection of claims 1-9 has been withdrawn.

## **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Peter Sistare on 01/23/06.

The application has been amended as follows:

Change the title to: --A speech recognition system with an adaptive acoustic model--.

### ***Allowable Subject Matter***

3. Claims 1-9 are allowed.
4. The following is an examiner's statement of reasons for allowance: Independent claim 1 teaches a speech recognition system comprising: a standard acoustic model having a standard vector generated according to speech, a first vector generation section that reduces the noise on a inputted speech utterance that corresponds to a

Art Unit: 2655

designated text, a second feature vector generation section for generating a second feature vector from the input signal having noise and a preparation section for generating an adaptive vector based on the first feature vector, the second feature vector and the standard vector and preparing a speaker adaptive acoustic model suitable for the uttered speech.

Hirayama (U.S. Pat. 5,854,999) teaches a voice recognition system comprising: a standard acoustic model having a standard vector generated according to information on voice (reference pattern, Fig. 4 element 30); a first feature vector generation section for generating a first feature vector from an input signal generated from an uttered voice (analyzer provides an input pattern to the matching section, Fig. 4, elements 10 and 20); a second feature vector generation section for generating a second feature vector from the input signal having the noise (analyzer provides an input pattern to the compensatory value calculator, Fig. 4 elements 10 and 40); and a preparation section for generating an adaptive vector based on the first feature vector, the second feature vector and the standard vector, and preparing a speaker adaptive acoustic model suitable for the uttered voice (compensatory value calculator calculates compensatory values to compensate the reference pattern to create a compensated reference pattern, col. 9, lines 13-39 and Fig. 4, elements 40 and 50).

Yamaguchi et al. (U.S. Pat. 6,062,359) teaches adapting models in speech recognition using inputted noisy speech and extracted noise.

Deng et al. (U.S. Pat. Pub. 2005/0149325A1) teaches adapting models in speech recognition using inputted clean speech and the inputted clean speech with added noise.

None of the prior art on record teaches that the first feature vector generation section reduces the noise from an input signal generated from uttered speech corresponding to a designated text to generate a first feature vector. It would not have been obvious to one of ordinary skill in the art at the time of invention to modify the prior art on record to arrive at the Applicant's invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Souilmi et al. (U.S. Pat. Pub. 2002/0165712A1) teaches training speech recognition acoustic models from noisy speech.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

Art Unit: 2655

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**WAYNE YOUNG**  
**SUPERVISORY PATENT EXAMINER**

MS  
01/23/06